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PATENT

Atty. Docket No. 678-649 (P9792)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S): Yong Chang

SERIAL NO.: 09/833,986

FILED: April 12, 2001

FOR: METHOD FOR PROVIDING CONCURRENT SERVICE
HARD HANDOFF IN A MOBILE COMMUNICATION
SYSTEM

#2

Dated: May 2, 2001

Assistant Commissioner
for Patents
Washington, D.C. 20231

ATTN: Official Draftsperson

TRANSMITTAL OF FORMAL DRAWINGS

Sir:

Applicant submits herewith eighteen (18) sheets of formal drawings
depicting FIGS. 1-10 for this application.

Respectfully submitted,

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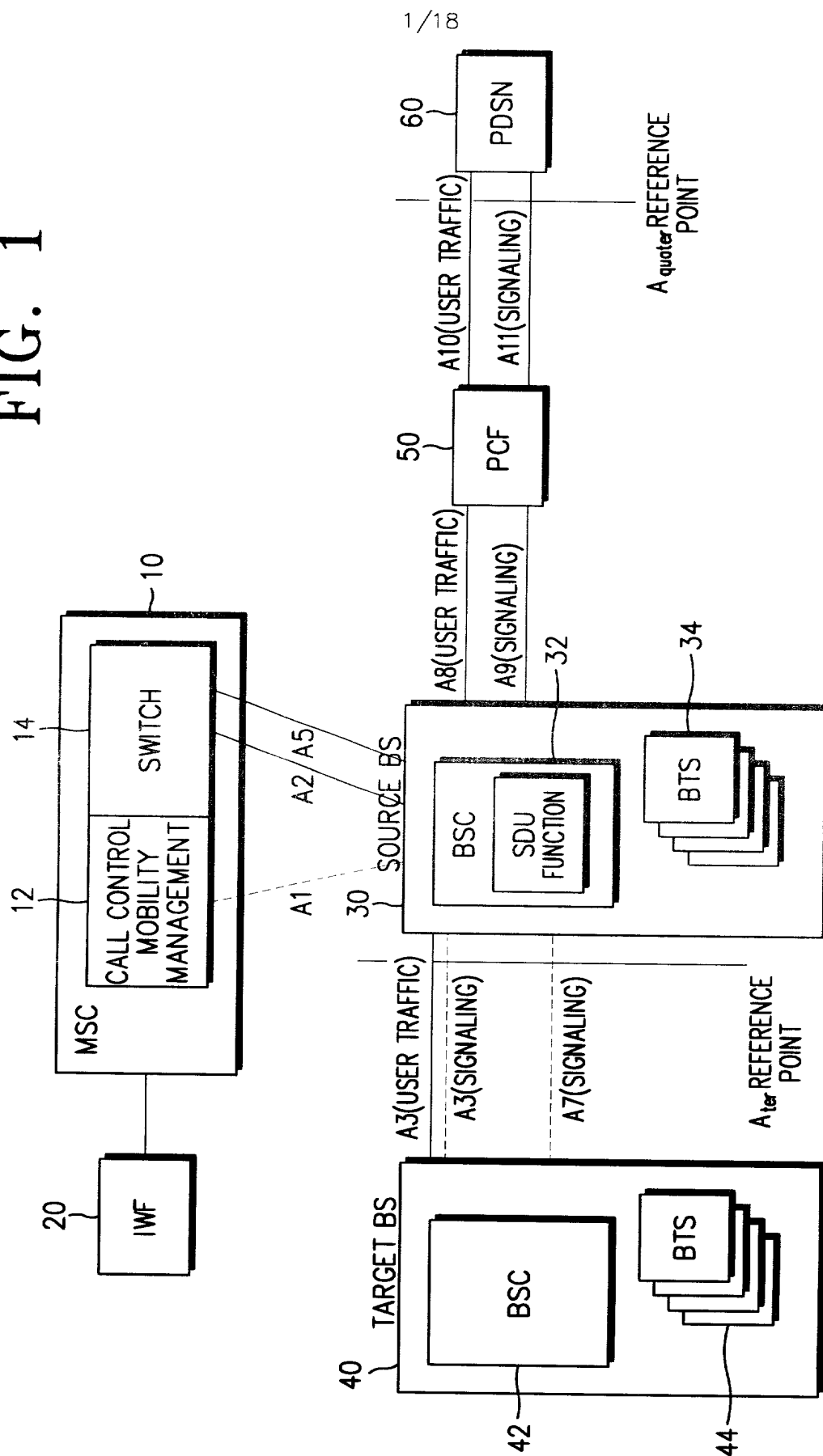
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FIG. 1



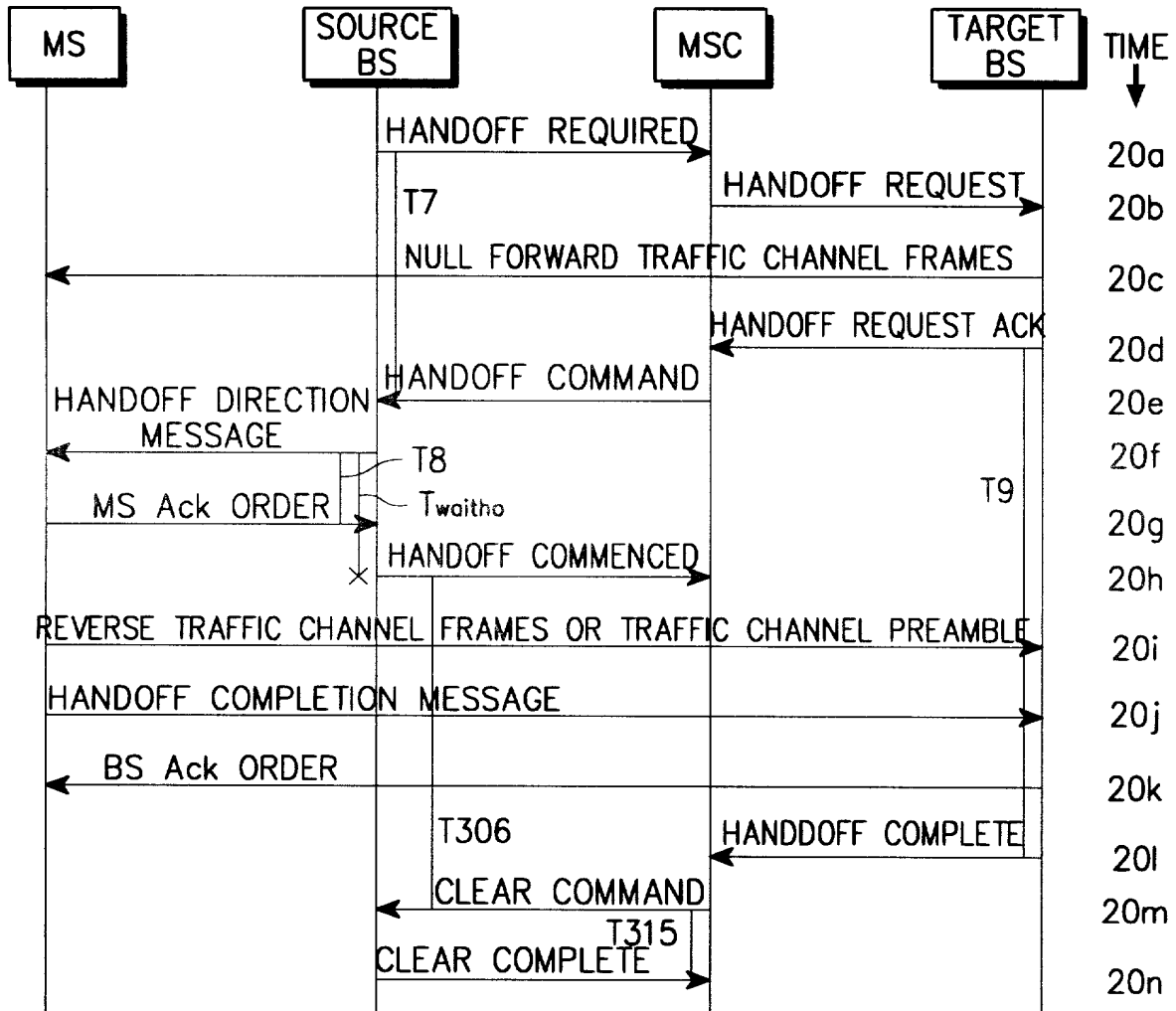


FIG. 2

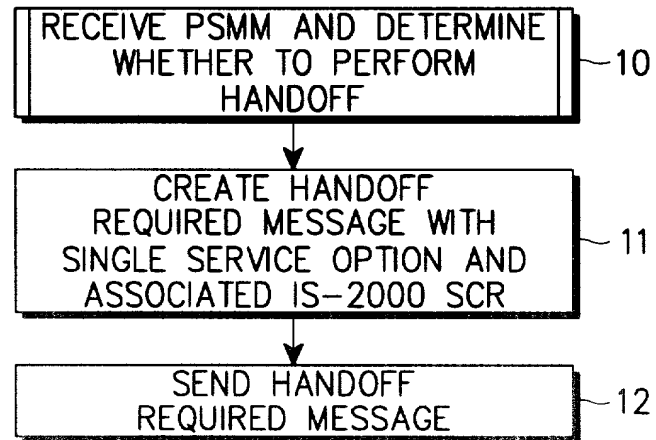


FIG. 3

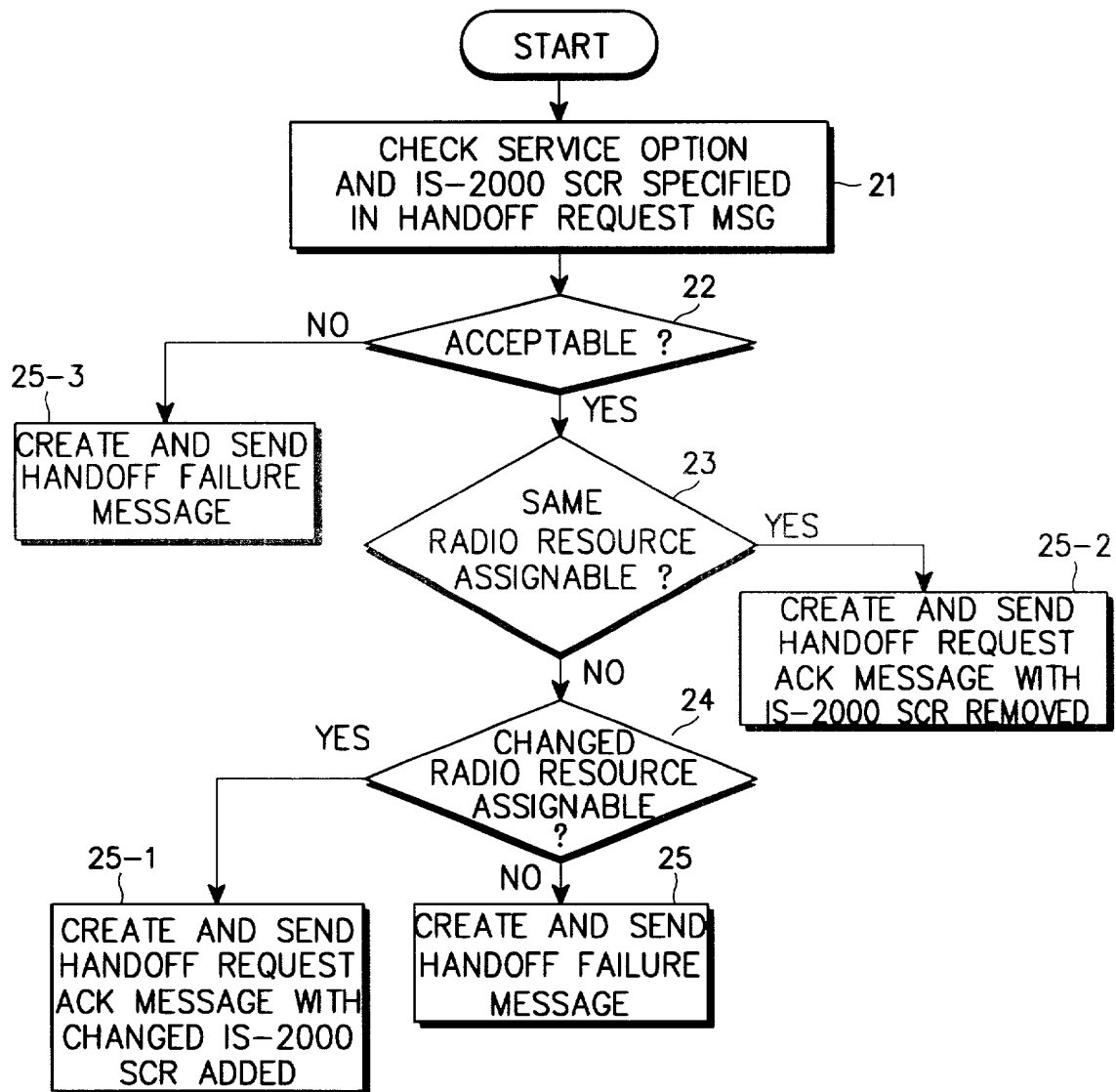


FIG. 4

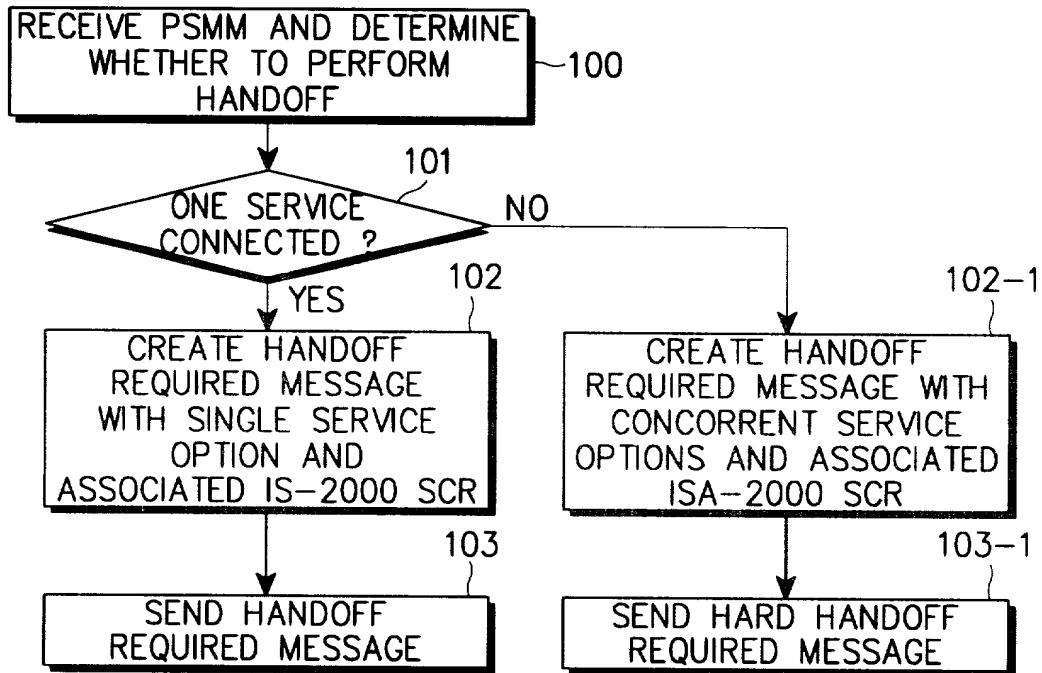


FIG. 5

INFORMATION ELEMENT
MESSAGE TYPE
CAUSE
CELL IDENTIFIER LIST(TARGET)
CLASSMARK INFORMATION TYPE2
RESPONSE REQUEST
ENCRYPTION INFORMATION
IS-95 CHANNEL IDENTITY
MOBILE IDENTITY(ESN)
DOWNLINK RADIO ENVIRONMENT
SERVICE OPTION
CDMA SERVING ONE WAY DELAY
IS-95 MS MEASURED CHANNEL IDENTITY
IS-2000 CHANNEL IDENTITY
QUALITY OF SERVICE PARAMETERS
IS-2000 MOBILE CAPABILITIES
IS-2000 SERVICE CONFIGURATION RECORD
PDSN IP ADDRESS
PROTOCOL TYPE
PACKET ZONE ID
SERVICE OPTION CONNECTION REFERENCE

FIG. 6

7	6	5	4	3	2	1	0	Octet
BSMAP HEADER: MESSAGE DISCRIMINATION = [00H]								1
LENGTH INDICATOR (LI) = <VARIABLE>								2
MESSAGE TYPE = [04H]								1
CAUSE: A1 ELEMENT IDENTIFIER = [04H]								1
LENGTH = [01H]								2
ext=[0]	CAUSE VALUE = [0EH, 0FH] (BETTER CELL, INTERFERENCE)							3
CELL IDENTIFIER LIST(TARGET):A1 ELEMENT IDENTIFIER = [1AH]								1
LENGTH = <VARIABLE>								2
CELL IDENTIFICATION DISCRIMINATOR=[02H,07H]								3
IF(DISCRIMINATOR=02H), CELL IDENTIFICATION {1+:								
(MSB)	CELL=[001H-FFFH]							j
			(LSB)	SECTOR=[0H-FH](OH=OMINI)				j+1
{OR IF (DISCRIMINATOR=07H), CELL IDENTIFICATION{1+:								
(MSB)								j
	MSCID=<ANY VALUE>							j+1
						(LSB)	j+2	
(MSB)	CELL=[001H-FFFH]							j+3
			(LSB)	SECTOR=[0H-FH](OH=OMINI)				j+4
{CELL IDENTIFICATION								
CLASSMARK INFORMATION TYPE 2:A1 ELEMENT IDENTIFIER=[12H]								1
LENGTH=<VARIABLE>								2
MOBILE P_REV =[000-111]			RESERVED =[0]	SEE LIST OF ENTRIES= [1]	RF POWER CAPABILITY=[000] (CLASS 1,VEHICLE & PORTABLE)			3
RESERVED=[00H]								4
NAR_ AN_ CAP =[0,1]	IS-95 =[1]	SLOTTED =[0,1]	RESERVED=[00]		DTX =[0,1]	MOBILE TERM =[0,1]	RESERVED =[0]	5
--CONTINUED ON Fig 7b--								

FIG. 7A

--CONTINUED ON Fig.7a--

--CONTINUED ON Fig.7a--				Octet	
RESERVED=[00H]				6	
RESERVED=[0000 00]		MOBILE TERM =[0,1]	PSI =[0,1]	7	
SCM LENGTH=[01H-05H]				8	
STATION CLASS MARK=[00H-FFH]				9	
COUNT OF BAND CLASS ENTRIES=[01H-20H]				10	
BAND CLASS ENTRY LENGTH=[03H]				11	
MOBILE BAND CLASS CAPABILITY ENTRY {1+:					
RESERVED=[000]		BAND CLASS n=[0000-1111]		k	
RESERVED=[000]		BAND CLASS n AIR INTERFACES SUPPORTED=[0000-1111]		k+1	
BAND CLASS n MS PROTOCOL LEVEL=[00H-FFH]				k+2	
{MOBILE BAND CLASS CAPABILITY ENTRY					
RESPONSE REQUEST: A1 ELEMENT IDENTIFIER=[1BH]				1	
ENCRYPTION INFORMATION: A1 ELEMENT IDENTIFIER=[0AH]				1	
LENGTH=<VARIABLE>				2	
ENCRYPTION INFO{0..4:					
IF(ENCRYPTION PARAMETER IDENTIFIER=0001) {1:					
ext=[1]	ENCRYPTION PARAMETER IDENTIFIER= [00001 (SME), 00101 (DATAKEY(ORYX)), 00110(INITIAL RAND)]		STATUS =[0,1]	AVAILABLE =[0,1]	j
ENCRYPTION PARAMETER LENGTH=[08H]				j+1	
(MSB)				j+2	
				j+3	
				j+4	
ENCRYPTION PARAMETER VALUE=<ANY VALUE>				j+5	
				j+6	
				j+7	
				j+8	
				j+9	
				(LSB)	
--CONTINUED ON Fig.7c--					

--CONTINUED ON Fig.7c--

FIG. 7B

--CONTINUED ON Fig.7b--

--CONTINUED ON Fig.7b--					Octet
{OR IF (ENCRYPTION PARAMETER IDENTIFIER=00100)}1:					
ext=[1]	ENCRYPTION PARAMETER IDENTIFIER=[00100] (PRIVATE LONGCODE)		STATUS =[0,1]	AVAILABLE =[0,1]	j
UNUSED=[000000]			(MSB)		j+1
					j+2
					j+3
ENCRYPTION PARAMETER VALUE=<ANY VALUE>					j+4
					j+5
					j+6
				(LSB)	j+7
{ENCRYPTION INFO					
IS-95 CHANNEL IDENTITY: A1 ELEMENT IDENTIFIER=[22H]					1
LENGTH=<VARIABLE>					2
HARD HANDOFF =[1]	NUMBER OF CHANNELS TO ADD=[001]		FRAME OFFSET=[0H-FH]		3
{1+:					
WALSH CODE CHANNEL INDEX=<ANY VALUE>					4
PILOT PN CODE (LOW PART)=<ANY VALUE>					5
PILOT PN CODE (HIGH PART) =[0,1]	POWER COMBINED =[0]	Freq. INCLUDED =[1]	RESERVED=[00]	ARFCN(HIGH PART) =[000-111]	6
ARFCN(LOW PART)=[00H-FFH]					7
{					
MOBILE IDENTITY(ESN): A1 ELEMENT IDENTIFIER=[0DH]					1
LENGTH=[05H]					2
IDENTITY DIGIT 1=[0000]		ODD/EVEN INDICATOR =[0]	TYPE OF IDENTITY =[101](ESN)		3
(MSB)					4
ESN=<ANY VALUE>					5
					6
				(LSB)	7
--CONTINUED ON Fig.7d--					

FIG. 7C

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--CONTINUED ON Fig.7c--

DOWNLINK RADIO ENVIRONMENT: A1 ELEMENT IDENTIFIER=[29H]		1
LENGTH=<VARIABLE>		2
NUMBER OF CELLS=<VARIABLE>		3
CELL IDENTIFICATION DISCRIMINATOR=[02H,07H]		4
DOWNLINK RADIO ENVIRONMENT{1+:		
IF (DISCRIMINATOR=02H), CELL IDENTIFICATION{1:		
(MSB)	CELL=[001H-FFFH]	j
	(LSB) SECTOR=[0H-FH](OH=OMNI)	j+1
{OR IF(DISCRIMINATOR=07H), CELL IDENTIFICATION {1:		
(MSB)		j
	MSCID=<ANY VALUE>	j+1
	(LSB)	j+2
(MSB)	CELL=[001H-FFFH]	j+3
	(LSB) SECTOR=[0H-FH](OH=OMNI)	j+4
{CELL IDENTIFICATION		
RESERVED=[00]	DOWNLINK SIGNAL STRENGTH RAW=[000000-111111]	k
(MSB)	CDMA TARGET ONE WAY DLAY=[0000H-FFFFH](x100ns)	k+1
	(LSB)	k+2
{DOWNLINK RADIO ENVIRONMENT		
SERVICE OPTION: A1 ELEMENT IDENTIFIER=[03H]		1
(MSB)	SERVICE OPTION	2
	=[8000H(13K SPEECH), 0011H(13K HIGH RATE VOICE SERVICE), 0003H(EVRC), 801FH(13K MARKOV), 0009H(13K LOOPBACK), 0004H(Async DATA RATE SET 1), 0005H(G3 FAX RATE SET 1), 000CH(Async DATA RATE SET 2), 000DH(G3 FAX RATE SET 2), 0006H(SMS RATE SET 1), 000EH(SMS RATE SET 2), 0021H(PACKET DATA), 0012H(OTAPA RATE SET 1), 0013H(OTAPA RATE SET 2)]	(LSB) 3

--CONTINUED ON Fig.7e--

FIG. 7D

--CONTINUED ON Fig.7d--		
CDMA SERVING ONE WAY DELAY: A1 ELEMENT IDENTIFIER=[0CH]		1
LENGTH=<VARIABLE>		2
CELL IDENTIFICATION DISCRIMINATOR=[03H,06H]		3
IF(DISCRIMINATOR=02H), CELL IDENTIFICATION {1:		
(MSB)	CELL=[001H-FFFH]	j
	(LSB) SECTOR=[0H-FH](OH=OMNI)	j+1
{OR IF(DISCRIMINATOR=07H), CELL IDENTIFICATION {1:		
(MSB)		j
MSCID=<ANY VALUE>		j+1
	(LSB)	j+2
(MSB)	CELL=[001H-FFFH]	j+3
	(LSB) SECTOR=[0H-FH](OH=OMNI)	j+4
{CELL IDENTIFICATION		
(MSB)	CDMA SERVING ONE WAY DELAY=[0000H-FFFFH](x100ns)	k
	(LSB)	k+1
S-95 MS MEASURED CHANNEL IDENTITY: A1 ELEMENT IDENTIFIER=[64H]		1
LENGTH=<VARIABLE>		2
BAND CLASS=[00000-1111]	ARFCN(HIGH PART) =[000-111]	3
ARFCN(LOW PART)=[00H-FFH]		4
IS-2000 CHANNEL IDENTITY: A1 ELEMENT IDENTIFIER=[09H]		1
LENGTH=<VARIABLE>		2
RESERVED=[0000]	FRAME OFFSET=[0H-FH]	3
CHANNEL INFORMATION {1+:		
PHYSICAL CHANNEL TYPE= [01H(FUNDAMENTAL CHANNEL-FCH-IS-2000), 02H(DEDICATED CONTROL CHANNEL-DCH-IS-2000)]		4n
RESERVED PILOT GATING RATE =[0]	QOF MASK =[00,01,10]	4n+1
WALSH CODE CHANNEL INDEX (HIGH PART)=<ANY VALUE>		4n+1
WALSH CODE CHANNEL INDEX(LOW PART)=<ANY VALUE>		4n+2
PILOT PN CODE (LOW PART)=<ANY VALUE>		4n+3
--CONTINUED ON Fig.7f--		

FIG. 7E

--CONTINUED ON Fig.7e--							
PILOT PN CODE (HIGH PART) =[0,1]	RESERVED=[000]		Freq. INCLUDED =[1]	ARFCN(HIGH PART) =[000-111]			6
ARFCN(LOW PART)=[00H-FFH]							7
{ CHANNEL INFORMATION							
QUALITY OF SERVICE PARAMETERS: A1 ELEMENT IDENTIFIER=[07H]							1
LENGTH=[01H]							2
RESERVED=[0000]			PACKET PRIORITY=[0000-1101]				3
IS-2000 MOBILE CAPABILITIES: AL ELEMENT IDENTIFIER=[11H]							1
LENGTH=<VARIABLE>							2
RESERVED =[00]	DCCH SUPPORTED =[0,1]	FCH SUPPORTED =[0,1]	OTD SUPPORTED =[0,1]	OTD INFO INCLUDED =[0,1]	ENHANCED RC CFG SUPPORTED =[0,1]	QPCH SUPPORTED =[0,1]	3
RESERVED =[00]	FORWARD RC PREFERRED= [0 0001(RADIO CONFIGURATION 1), 0 0010(RADIO CONFIGURATION 2), 0 0011(RADIO CONFIGURATION 3), 0 0100(RADIO CONFIGURATION 4), 0 0101(RADIO CONFIGURATION 5), 0 0110(RADIO CONFIGURATION 6), 0 0111(RADIO CONFIGURATION 7), 0 1000(RADIO CONFIGURATION 8), 1 0001(RADIO CONFIGURATION 9)]					FORWARD RC Pref. INCLUDED =[0,1]	4
RESERVED =[00]	REVERSE RC PREFERRED= [0 0001(RADIO CONFIGURATION 1), 0 0010(RADIO CONFIGURATION 2), 0 0011(RADIO CONFIGURATION 3), 0 0100(RADIO CONFIGURATION 4), 0 0101(RADIO CONFIGURATION 5), 0 0110(RADIO CONFIGURATION 6),					REVERSE RC Pref. INCLUDED =[0,1]	5
FCH INFORMATION: BIT-EXACT LENGTH-Octet COUNT =[00H TO FFH]							6
RESERVED =[0000 0]				FCH INFORMATION: BIT-EXACT LENGTH-FILL BITS =[000 TO 111]			7
--CONTINUED ON Fig.7g--							

FIG. 7F

--CONTINUED ON Fig.7h--

FIG. 7G

--CONTINUED ON Fig.7g--

PDSN IP ADDRESS: A1 ELEMENT IDENTIFIER=[14H]		1
LENGTH=[04H]		2
(MSB)		3
PDSN IP ADDRESS=<ANY VALUE>		4
		5
	(LSB)	6
PROTOCOL TYPE: A1 ELEMENT IDENTIFIER=[18H]		1
LENGTH=[02H]		2
(MSB)	PROTOCOL TYPE=[88 0BH](PPP)	3
	(LSB)	4
PACKET ZONE ID: A1 ELEMENT IDENTIFIER=[xxH]		1
(MSB)	PACKET ZONE ID	(LSB) 2
SERVICE OPTION CONNECTION REFERENCE: A1 ELEMENT IDENTIFIER=[xxH]		1
LENGTH=[013H]		2
RESERVED=[000000]		SOC_N UM=1 3
(MSB)	SERVICE OPTION 1	4
=[8000H (13K SPEECH), 0011H (13K HIGH RATE VOICE SERVICE), 0003H (EVRC), 801FH (13K MARKOV), 0009H (13K LOOPBACK), 0004H (Async DATA RATE SET 1), 0005H (G3 FAX RATE SET 1), 000CH (Async DATA RATE SET 2), 000DH (G3 FAX RATE SET 2), 0006H (SMS RATE SET 1), 000EH (SMS RATE SET 2), 0021H (PACKET DATA), 0012H (OTAPA RATE SET 1), 0013H (OTAPA RATE SET 2)]	(LSB)	5
(MSB)		6
SERVICE OPTION 1 CONNECTION REFERENCE=<ANY VALUE>		7
		8
	(LSB)	9

--CONTINUED ON Fig.7i--

FIG. 7H

--CONTINUED ON Fig.7h--			
(MSB)	SERVICE OPTION 2		10
	<div>=[8000H (13K SPEECH), 0011H (13K HIGH RATE VOICE SERVICE), 0003H (EVRC), 801FH (13K MARKOV), 0009H (13K LOOPBACK), 0004H (Async DATA RATE SET 1), 0005H (G3 FAX RATE SET 1), 000CH (Async DATA RATE SET 2), 000DH (G3 FAX RATE SET 2), 0006H (SMS RATE SET 1), 000EH (SMS RATE SET 2), 0021H (PACKET DATA), 0012H (OTAPA RATE SET 1), 0013H (OTAPA RATE SET 2)]</div>	(LSB)	11
(MSB)			12
SERVICE OPTION 2 CONNECTION REFERENCE=<ANY VALUE>			13
			14
		(MSB)	15

FIG. 7I

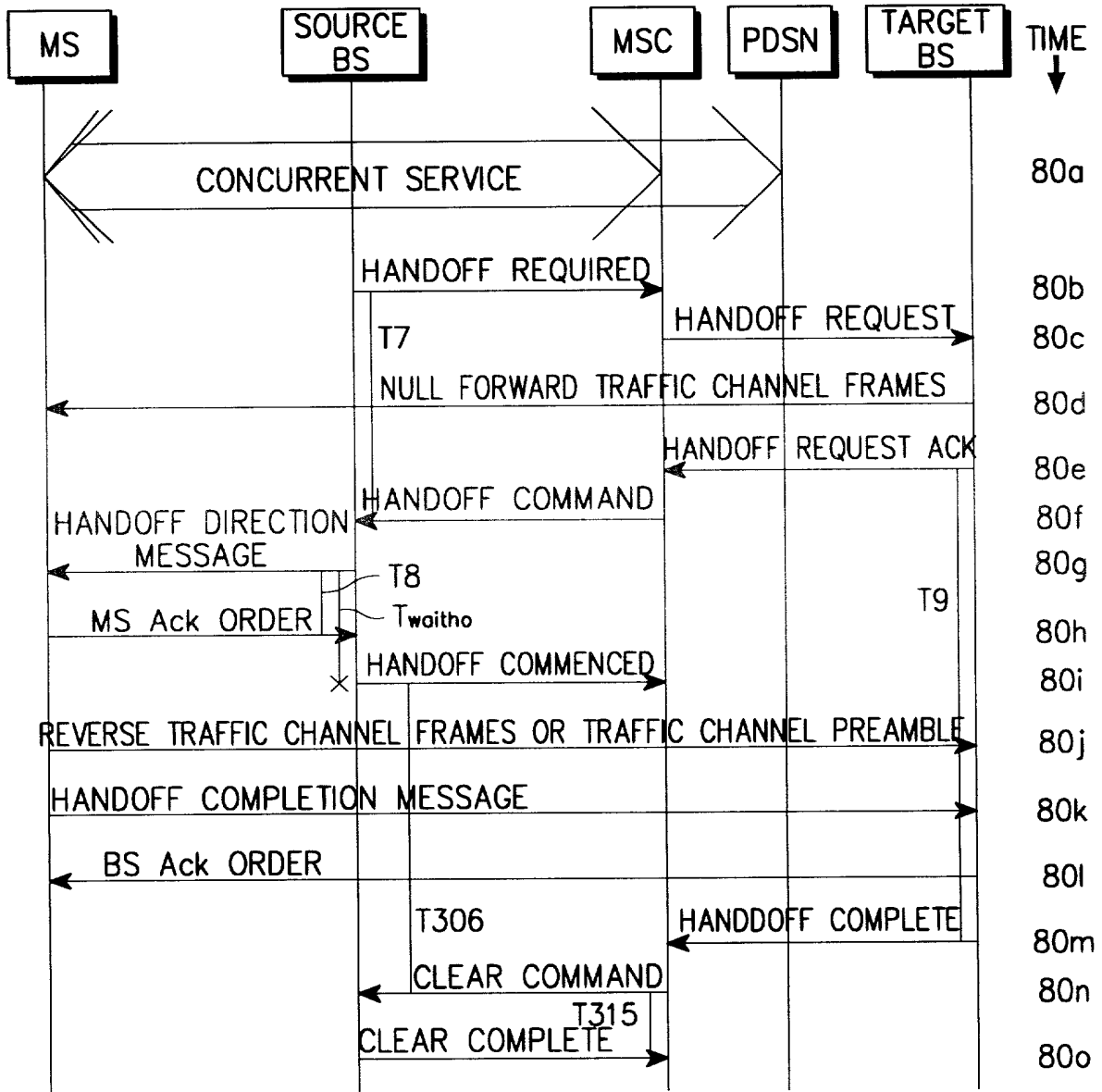
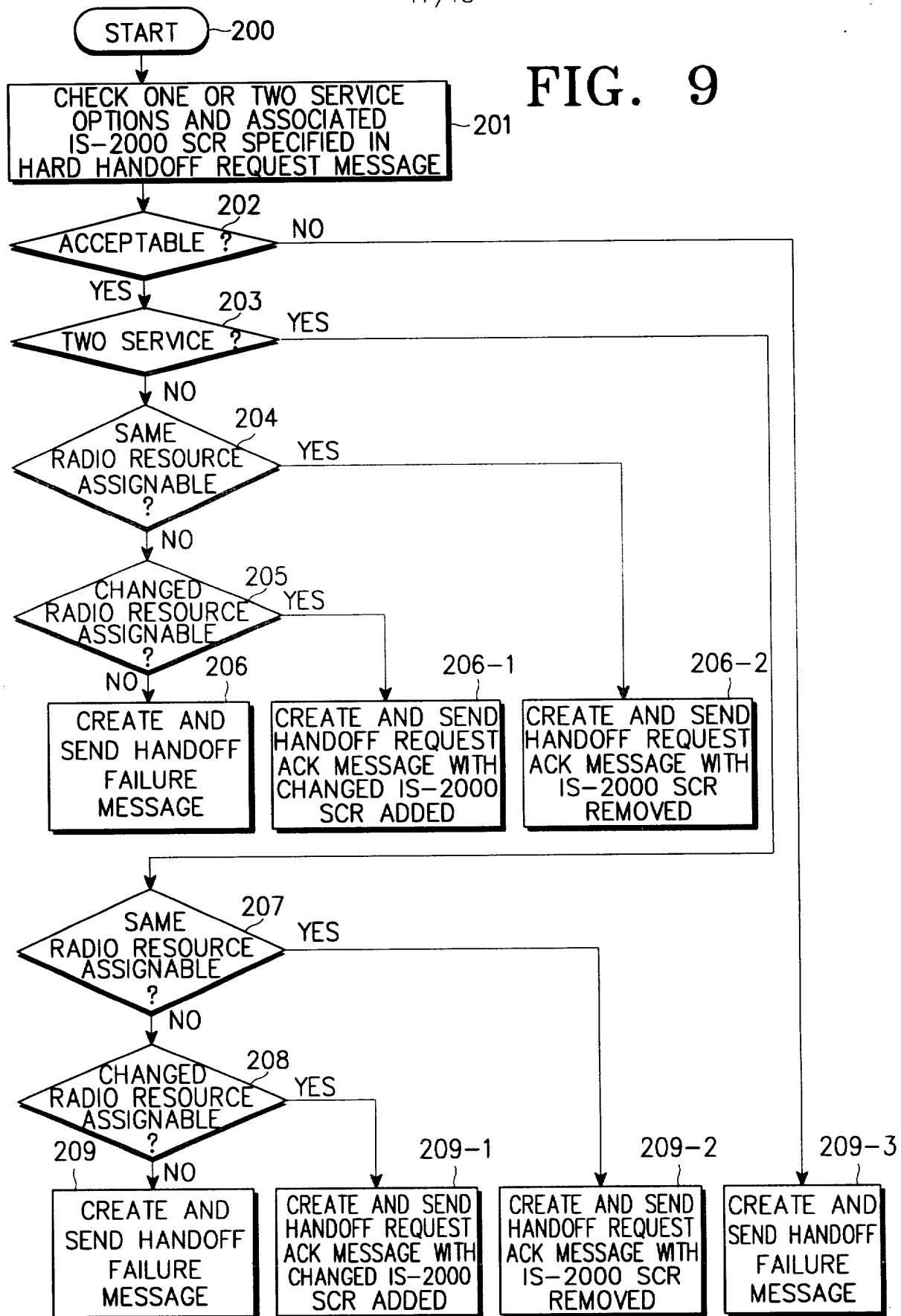


FIG. 8

FIG. 9



INFORMATION ELEMENT
MESSAGE TYPE
CHANNEL TYPE
ENCRYPTION INFORMATION
CLASSMARK INFORMATION TYPE2
CELL IDENTIFIER LIST(TARGET)
CIRCUIT IDENTIFIER CODE EXTENSION
IS-95 CHANNEL IDENTITY
MOBILE IDENTITY(IMSI)
MOBILE IDENTITY(ESN)
DOWNLINK RADIO ENVIRONMENT
SERVICE OPTION
CDMA SERVING ONE WAY DELAY
IS-95 MS MEASURED CHANNEL IDENTITY
IS-2000 CHANNEL IDENTITY
QUALITY OF SERVICE PARAMETERS
IS-2000 MOBILE CAPABILITIES
IS-2000 SERVICE CONFIGURATION RECORD
PDSN IP ADDRESS
PROTOCOL TYPE
PACKET ZONE ID
SERVICE OPTION CONNECTION REFERENCE

FIG. 10